

*By
Conf*

monobutyl itaconate, monomethyl maleate, monoethyl maleate, monobutyl maleate, or citraconic acid;

said monomer B is styrene, vinyl toluene, methyl methacrylate, ethylene glycol dimethacrylate, ethylene glycol diacrylate, divinylbenzene or ethyl methacrylate; and

C said water-insoluble particulate ^{stabilizer} is silica or co-poly(styrene-2-hydroxyethyl-methacrylate-methacrylic acid-ethyleneglycol dimethacrylate). -

REMARKS

The Office Action of September 24, 1999 has been carefully reviewed. In view of the addition herein of new claims 6-13, claims 1-13 are pending in the case.

Claim 2 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Office Action asserts that the recited phrase "the carboxylic acid containing monomer is selected from the group consisting of acrylic monomers, monoalkyl itaconates, monoalkyl maleates, citraconic acid and styrenecarboxylic acid" constitutes indefinite subject matter. Specifically, it is argued that it is not readily ascertainable as to how the species further limit the antecedently recited "carboxylic acid containing monomer".

Applicants do not understand this objection to claim 2. In any event, claim 2 is amended herein for clarity, and presumably obviates the Examiner's objection.

The rejection also states that "styrenecarboxylic acid" engenders non-art recognized subject matter. Applicants disagree with this assessment. One of skill in the art would be aware that "styrenecarboxylic acid monomers" refers to styrene molecules having a carboxylic acid substituent on the phenyl ring in any of the para, meta, or ortho positions.

In view of the above remarks, withdrawal of the rejection under 35 U.S.C. § 112 is respectfully requested.

Claims 1-5 were rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Stamberger et al. (U.S. Pat. No. 3,068,185). Applicants respectfully traverse this rejection.

The Office Action states that Stamberger discloses and exemplifies processes which involve polymerizing ethylenically unsaturated monomer(s) which include (meth)acrylic acid in the presence of an aqueous dispersion of clay and other conventional additives, including water-soluble salts. The Office Action also states that, while Stamberger may not recognize the formation of stable monomer droplets in the aqueous phase it is presumed that the runs of Stamberger meet this limitation since the runs of Stamberger are essentially the same as the claimed process. It is respectfully submitted that the process disclosed in Stamberger does not suggest Applicants' claimed process.

In Stamberger ethylenically unsaturated monomers are polymerized on the surface of clay particles, see col. 2, lines 26 to 39. Stamberger does not disclose or suggest a process wherein monomer droplets are formed in an aqueous phase. Nor does Stamberger suggest polymerization occurring in particles of coalesced monomers. See, e.g., Applicants' specification at page 6, line 29 - page 7, line 20. Additionally, Stamberger does not disclose or suggest the combination of ethylenically unsaturated monomers containing a carboxylic acid group and water-insoluble ethylenically unsaturated monomers, wherein the monomer droplets that are formed comprise at least 20% of a carboxylic acid containing monomer.

Further, the Examiner's attention is respectfully directed to Stamberger at col. 4, line 62 where the clay is described as larger than 0.1 µm (100 nm). The clay therefore should not be equated with the water-insoluble stabilizer of the present invention which has a size less than 100 nm.

In view of the above remarks, it is respectfully submitted that Stamberger fails to anticipate or render obvious Applicants' invention. Withdrawal of the rejection under 35 U.S.C. §102(b)/§103(a) is respectfully requested.

Claims 1-5 were rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over McNeil et al. (U.S. Pat. No. 5,089,295). Applicants respectfully traverse this rejection.

The Office Action states that McNeil discloses and exemplifies processes for the preparation of polymers which comprise a free-radical suspension polymerization of a monomer phase comprising at least two monomers. The Office Action also states that the preparation also contains an initiator and an

aqueous phase comprised of magnetite, inorganic salts such as nitrites, chlorides, phosphates, nitrates, etc., and other optional components, wherein stable monomer droplets in the aqueous phase are formed. The Office Action further states that the McNeil reference anticipates the instantly claimed invention with the understanding that one of ordinary skill in the art would have readily envisioned the use of a carboxylic acid containing monomer in lieu of or in addition to the n-butyl methacrylate monomer following the guidelines of McNeil at col. 11, line 46-45.

McNeil does not disclose or suggest the invention of the instant claims. Applicant's claim 1 recites the following:

- (i) that the ethylenically unsaturated monomers comprise at least one monomer A and at least one monomer B, wherein monomer A is an ethylenically unsaturated monomer containing a carboxylic acid group and monomer B is a water-insoluble ethylenically unsaturated monomer; and
- (ii) that the monomer droplets that are formed comprise at least 20% of a carboxylic acid containing monomer. McNeil does not suggest that use of comonomers wherein one monomer is an ethylenically unsaturated monomer containing a carboxylic acid group and the other monomer is a water-insoluble ethylenically unsaturated monomer. The only comonomer combinations specifically recited in the Examples include styrene/butadiene and styrene/n-butyl methacrylate. The only mention of carboxylic acid containing monomers is at col. 11, line 46-45, as indicated by the Examiner. However, this discussion only lists possible monomers, but never suggest the combination of monomers recited in Claim 1. Additionally, McNeil provides no suggestion of monomer droplets which comprise at least 20% of a carboxylic acid containing monomer.

Please note that in col. 9, lines 62-63, the salt (sodium nitrite) is limited from 500 ppm to 1,500 ppm (0.05% to 0.15%). Further, nowhere is the size of the inorganic oxide pigment specified. Certainly the reference does not teach a water-insoluble particulate stabilizer having a size less than 100 nm.

In view of the above remarks, it is respectfully submitted that McNeil fails to anticipate or render obvious applicants' claimed invention. Withdrawal of the rejection under 35 U.S.C. §103(b)/§103(a) is respectfully requested.

New Claims

New claims 6,7, 17 and 18 recite certain water-soluble salts. Support for these new claims may be found in the specification on, for example, page 7, line 26 - 8, line 5. New claims 8, 9, 17 and 18 recite certain water-insoluble ethylenically unsaturated monomers. Support for new claims 8, 9, 17 and 18 may be found in the specification on, for example, page 8, line 19 - page 9, line 25. New claims 10, 11, 17 and 18 recite certain water-insoluble particulate stabilizers. Support for these new may be found in the specification on, for example, page 10, lines 5-13.

New claims 12 and 13 recite that the aqueous medium further comprises a promoter and that the promoter is polydiethanolamine, respectively. Support for new claims 12 and 13 may be found in the specification on, for example, page 10, line 23 through page 11, line 12.

New claims 14, 17 and 18 recite certain carboxylic acid containing ethylenically unsaturated monomers. Support for new claims 14, 17 and 18 may be found in the specification on, for example, page 8, lines 6-18.

New claims 15 and 16 recite that the aqueous medium further comprises a polymerization inhibitor and that the polymerization inhibitor is potassium dichromate or cupric sulfate pentahydrate, respectively. Support for new claims 15 and 16 may be found in the specification on, for example, page 11, lines 13-23.

The claims of the application are now believed to be in condition for allowance and such allowance is respectfully requested. The Examiner is cordially invited to telephone the undersigned at the number below with any questions or comments.

Respectfully submitted,



Doreen M. Wells
Attorney for Applicants
Registration No. 34,278

Doreen M. Wells/fd
Rochester, NY 14650
Telephone: (716) 588-2405
Facsimile: (716) 477-1148